

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-52. (canceled)

53. (new) A method of modulating in a plant cell the level(s) of one or more terpenoid indole alkaloids (TIAs), and/or of modulating the expression of one or more genes responsible for the biosynthesis of a TIA or a precursor thereof, said method comprising providing to the cell an AP2-domain transcription factor that is jasmonate responsive and comprising at least one AP2-domain having an amino acid sequence with at least 80% amino acid identity with SEQ ID NO:6.

54. (new) The method according to claim 53, wherein the AP2-domain transcription factor is provided to the cell by the expression in said cell, under the control of an expression regulating sequence operable in said cell, of a nucleotide sequence that encodes the AP2-domain transcription factor.

55. (new) The method according to claim 54, comprising the steps of:

- (a) transforming the cell with a genetic construct, said construct comprising the nucleotide sequence encoding the AP2-domain transcription factor, operably linked to said expression regulating sequence;
- (b) maintaining the cell under conditions such that the nucleotide sequence is expressed in said cell.

56. (new) The method according to claim 54, wherein the expression regulating sequence is heterologous to the cell and/or in which the expression regulating sequence is an expression regulating sequence with which the nucleotide sequence that encodes the AP2-domain transcription factor is not natively associated.

57. (new) The method according to claim 53, wherein the plant cell is present in a plant, plant part, organ of a plant, or in a culture of plant cells, wherein said plant or plant cells has/have been transformed with a genetic construct comprising a nucleotide sequence encoding the AP2-domain transcription factor operably linked to an expression regulating sequence operable in said plant or plant cells.

58. (new) The method according to claim 53, wherein the TIA is selected from the group consisting of serpentine, ajmalicine, vincristine, vinblastine, camptothecine, quinine,

quinidine, reserpine, strictosidine, rescinnamine, ellipticine and precursors and/or intermediates therefore.

59. (new) The method according to claim 53, wherein the gene involved in the biosynthesis of the TIA encodes a protein or polypeptide, including but not limited to an enzyme.

60. (new) The method according to claim 59 wherein the enzymes are selected from the group consisting of: Tdc, Str, Cpr, D4h, Asa and Dxs.

61. (new) A plant, plant cell or plant material that has been transformed with a genetic construct comprising a nucleotide sequence encoding an jasmonate responsive AP2-domain transcription factor comprising at least one AP2-domain having an amino acid sequence with at least 80% amino acid identity with SEQ ID NO:6.

62. (new) The plant, plant cell or plant material according to claim 61, in which the expression regulating sequence is heterologous to the plant or plant cell and/or in which the expression regulating sequence is an expression regulating sequence with which the nucleotide sequence is not natively associated.

63. (new) The plant, plant cell or plant material according to claim 61, wherein a TIA is selected from the group of TIA's consisting of serpentine, ajmalicine, vincristine, vinblastine, camptothecine, quinine, quinidine, reserpine, strictosidine, rescinnamine, ellipticine and precursors and/or intermediates therefore.

64. (new) The plant, plant cell or plant material according to 61 wherein the plant is of the Gentianales order or the Cornales order.

65. (new) The plant, plant cell or plant material according to claim 64 wherein the plant is of the family apocynaceae, of the genus catharantus and is selected from the group of species consisting of C. roseus, C. coriaceus, C. lanceus, C. longifolius, C. ovalis, C. pusillus, S. scitulus and C. trichophyllus.

66. (new) A cultivating material for or of transformed plant; plant material obtained from a plant; or a descendant of a transformed plant according to claim 61, characterized in that the cultivating material, the plant material, or the descendant contains a genetic construct comprising a nucleotide sequence encoding an AP2-domain transcription factor that is jasmonate responsive and comprises at least one AP2-domain having an amino

acid sequence with at least 80% amino acid identity with SEQ ID NO:6.

67. (new) A method for providing a transformed plant or a descendant of such a transformed plant, in which, compared to the corresponding native non-transformed plant,

- the intracellular level(s) of one or more TIA's are enhanced, the intracellular levels of one or more other metabolites are reduced; or a combination thereof; and/or
- the expression of one or more genes involved in the biosynthesis of a TIA's or a precursor therefor are enhanced; the expression in the cell of one or more genes involved in the biosynthesis of a metabolite or a precursor therefor are reduced; or a combination thereof;
- said method comprising the steps of:
- transforming a plant, plant cell or plant material with a genetic construct comprising at least one nucleotide sequence encoding an AP2-domain transcription factor that is involved in the response of a plant cell to a jasmonate, or encoding an AP2-domain transcription factor comprising at least one AP2-domain having an amino acid sequence with at least 80% amino acid identity with SEQ ID NO:6, whereby the nucleotide sequence is operably linked to an expression regulating sequence;

- (a) optionally cultivating the plant, plant cell or plant material into a mature plant; and/or
- (b) optionally providing one or more further generations of the transformed plant of step (a) and/or step (b) by sexual or asexual reproduction, including but not limited to standard plant cultivation and/or plant breeding techniques, whereby the further generations of the transformed plant contain a genetic construct comprising at least one nucleotide sequence encoding an AP2-domain transcription factor that is responsive to a jasmonate, encoding an AP2-domain transcription factor comprising at least one AP2-domain having an amino acid sequence with at least 80% amino acid identity with an SEQ ID NO:6.

68. (new) A method of producing a TIA, the method comprising providing a recombinant cell or plant according to claim 61, cultivating said cell or plant under conditions conducive to the expression of the nucleotide sequence coding for AP2-domain transcription factor, whereby expression of the transcription factor causes the expression of at least one gene involved in the production of the TIA, and recovering the TIA from the plant cell, the plant, and/or plant material obtained from said plant.

69. (new) The method according to claim 68 whereby the TIA is selected from the group consisting of serpentine, ajmalicine, vincristine, vinblastine, camptothecin, quinine, strictosidine, vindoline and precursors and/or intermediates therefore.

70. (new) An isolated nucleic acid molecule comprising a nucleotide sequence selected from:

- (a) SEQ ID NO: 3;
- (b) a nucleotide sequence encoding an AP2-domain transcription factor that is jasmonate responsive, having at least one AP2-domain and having an amino acid sequence with at least 80% amino acid identity with SEQ ID NO:6.

71. (new) The isolated nucleic acid molecule according to claim 70, wherein said sequence comprises SEQ ID NO:3.

72. (new) The method according to claim 53, wherein the AP2-domain comprises SEQ ID NO:6.

73. (new) The method according to claim 61, wherein the AP2-domain comprises SEQ ID NO:6.

74. (new) The method according to claim 64, wherein the AP2-domain comprises SEQ ID NO:6.

75. (new) The method according to claim 66, wherein the AP2-domain comprises SEQ ID NO:6.

76. (new) The method according to claim 67, wherein the AP2-domain comprises SEQ ID NO:6.

77. (new) The method according to claim 53, further comprising:

transforming the cell with a genetic construct, said construct comprising the nucleotide sequence SEQ ID NO:3;

maintaining the cell under conditions such that the nucleotide sequence is expressed in said cell and encodes an AP2-domain transcription factor comprising SEQ ID NO:6; and

wherein said plant cell is from a plant selected from the group of species consisting of *C. roseus*, *C. coriaceus*, *C. lanceus*, *C. longifolius*, *C. ovalis*, *C. pusillus*, *S. scitulus* and *C. trichophyllus*; and wherein said (TIAs) are selected from the group consisting of serpentine, ajmalicine, vincristine, vinblastine, camptothecine, quinine, quinidine, reserpine, strictosidine, rescinnamine, ellipticine and precursors and/or intermediates therefore.